User's manual

802.11G Hi-Speed Wireless-G
Aecess Point and Workgroup Bridge

HWBA54G

HI-SPEED SERIES 54G

HAWKING TECHNOLOGY

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CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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Hawking Technology guarantees that every HWBA54G Wireless-G AP / Bridge is free from physical defects in material and workmanship under normal use for two (2) years from the date of purchase. If the product proves defective during this two-year warranty period, call Hawking Customer Service in order to obtain a Return Authorization number. Warranty is for repair or replacement only. Hawking Technology does not issue any refunds. BE SURE TO HAVE YOUR PROOF OF PURCHASE. RETURN REQUESTS CAN NOT BE PROCESSED WITHOUT PROOF OF PURCHASE. When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase.

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Table of contents

Introduction

Thank you for purchasing the Hawking Technologies Hi-Speed 54G Wireless-G Access Point and Ethernet Bridge. This product is compliant with the IEEE 802.11g wireless standard and operates at transfer speeds up to 54Mbps. It is backwards compatible current 802.11b wireless hardware.

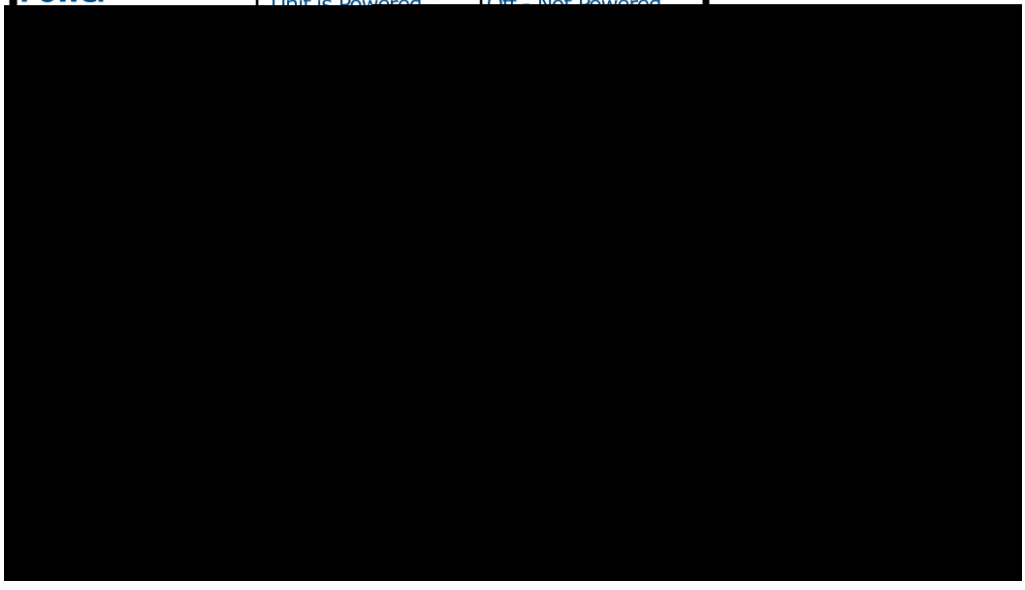
The **Hi-Speed 54G Wireless AP/Bridge** utilizes the highest wireless security standards (WPA) to protect your network from outside intruders.

The unique multi-function feature of the HWBA54G puts three solutions into one compact unit, saving you time and money. You may setup your HWBA54G as a Wireless Access Point to provide wireless access to any wired network or you may choose to set up your device as an Ethernet Bridge to make any Ethernet-ready device wireless. The Hi-Speed 54G Wireless AP/Bridge can also function as a wireless repeater to extend your wireless network range.

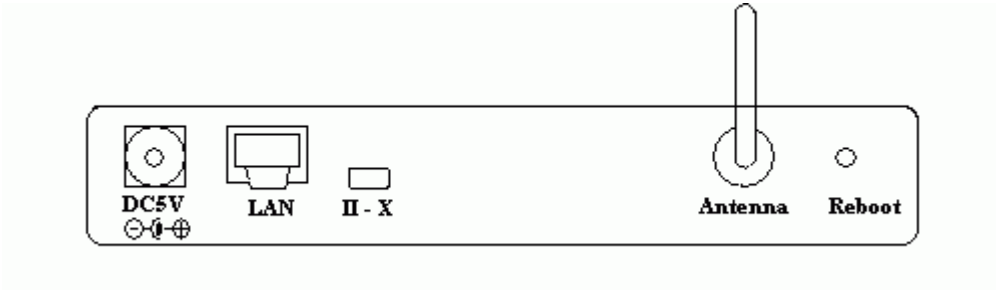
LED Indicators

LED Indicators on the Front Panel

HWBA54G	On / Solid	Off / Flashing
Power	Unit is Powered	Off – Not Powered



Ports on the Rear Panel



	Port/button	Functions
A	**5V DC**	Connects to the power adapter.
B	**LAN**	Connects to your LAN's network device.
C	**II-X**	Switch this button for choosing different wiring scheme LAN connections; **Switch left** to select using a straight Ethernet cable (To connect to a hub or switch); **Switch right** to use a Crossover Ethernet cable (To connect directly to a PC or device).
D	**Antenna**	Adjust to have better performance. Twist off to remove and replace with a Hawking Hi-Gain Antenna (sold separately) for better performance.
E	**Reboot**	Use a pin-shape item, for example a pin tip, to press this button to re-boot this device when the device stops working properly.

Getting Connected

1. **Find a Location**: choose a location to place the access point. Usually, the best place for the access point is at the center of your wireless network, with line of straight to all your wireless stations.
2. **Adjust the Antenna**: usually the higher the antenna is placed, the better your performance will be.
3. **Connect to your local area network:** connect a straight or a crossover **Ethernet cable** to one of the **Ethernet** port of the access point, and the other end to a hub or switch. (If you are using a straight Ethernet cable, make sure the II-X button is switched right; the other way for Cross Ethernet cable.)
4. **Power on the device**: connect the included AC power adapter to the access point's power port and the other end to a wall outlet. *Note: use only the power adapter that provided with the access point. Using a different power adapter may cause permanent damage to the device.*

About the Operating Modes

This device provides two main operational applications: **Access Point** and **Bridge** modes, which are mutually exclusive.

1. **Access Point**: As a wireless access point the HWBA54G allows any existing wired network to have wireless access.

2. **Bridge**: When acting as a Bridge, the HWBA54G serves as a wireless adapter that connects a wired network with another wired or wireless network(s) through an access point(s). See the sample application below.

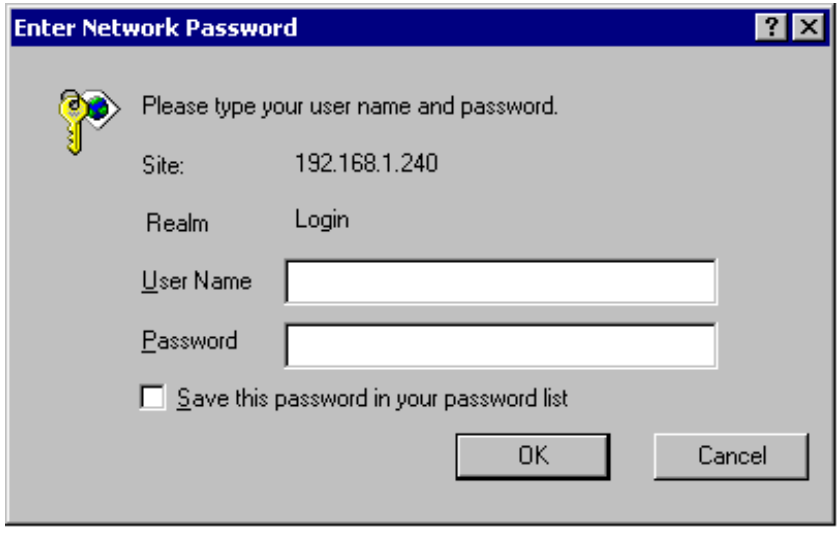
This device is shipped with configuration that is functional right out of the

box. If you want to change the settings in order to perform more advanced configuration or even change the mode of operation, you can use the web-based utility provided by the manufacturer as described in the following sections or use the Software-based Setup Wizard in the included CD-Rom.

WPA AP -Configuration via Web

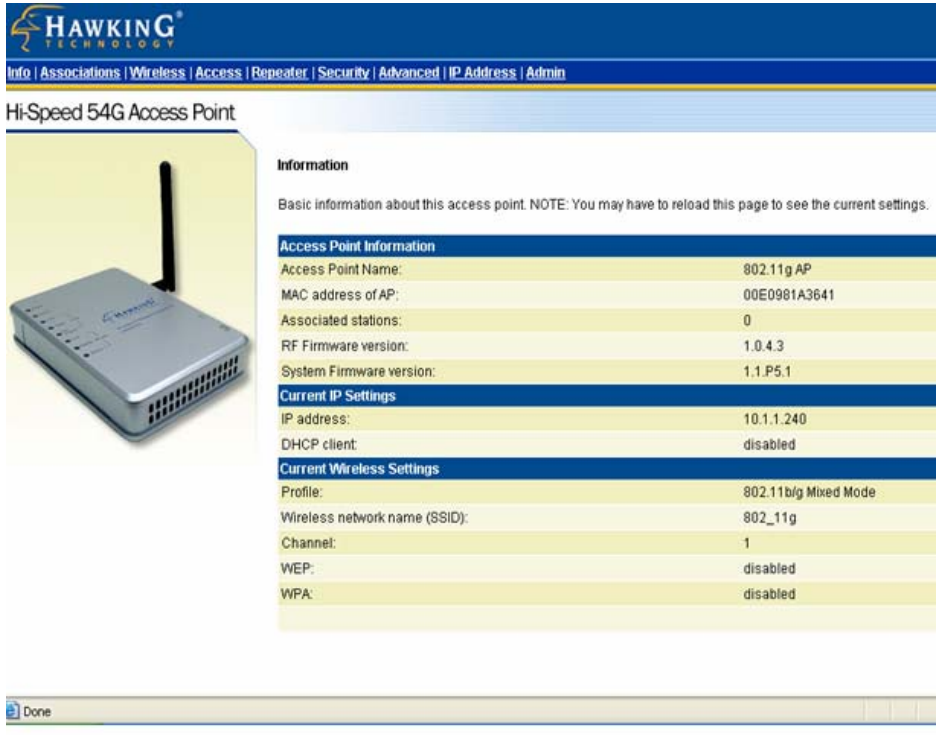
Login

1. Open the browser, enter the local port IP address of the Device (default at **192.168.1. 240**), and click "**Go**" to get the login page.
2. The user name and password are not required and should be left blank for the first-time login. Just click **OK** to enter.



Info(Information)

The setup home page will display the information about the current settings of this access point.



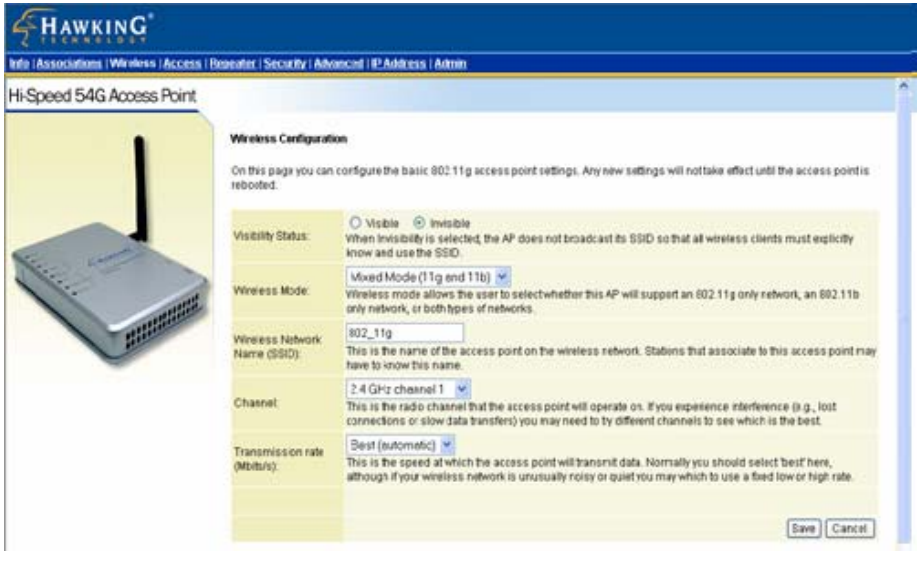
Assoc(Associations)

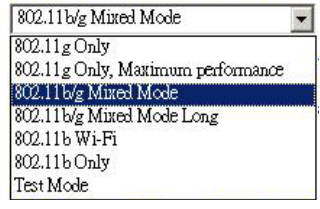
This page shows the **MAC addresses** of devices connected to this Wireless 802.11g Access Point.

Wireless (Wireless Configuration)

Here you can set/change wireless configuration including **visibility status, PHY profiles, SSID, channel, transmission rate** … etc. See the description that comes after each function.

When you are done with the change, remember to **restart** this access point to let the new settings take effect.



Visibility Status	If you select **invisible**, this AP can not be detected by wireless sniffers; which means all the wireless clients can not associated to this AP unless they know/use the SSID.
PHY Profiles	You can select different wireless networking hardware (PHY) to meet your wireless environment or for optimal performance. You can thus choose from the list. 
Wireless Network Name (SSID)	The **SSID** is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network.
Channel	Shows the selected channel that is currently in use. (There are **14** channels available, depending on the country.)
Transmission rate (Mbps)	Shows the current transfer rate There are Best (Automatic), Fixed 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54Mbps.)

Access (Access Control)

This AP provides MAC Address filtering, which prevents unauthorized MAC Addresses from accessing your Wireless LAN.

Once you check to enable access control, only MAC addresses entered in following fields are allowed to associate to this AP.

Note:

1. You can enter 16 MAC Addresses to associate to this AP.
2. You can copy the MAC addresses shown on the Station List and past them to the MAC address table to save the effort of typing and avoid typo as well.

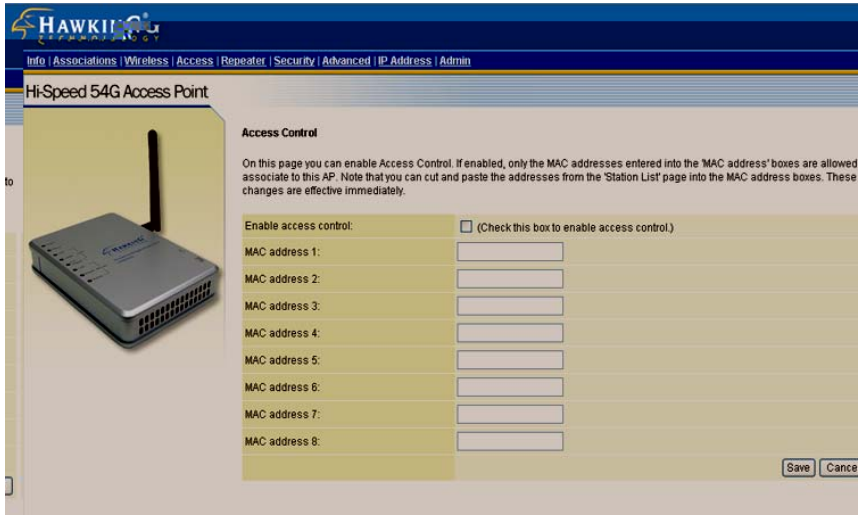
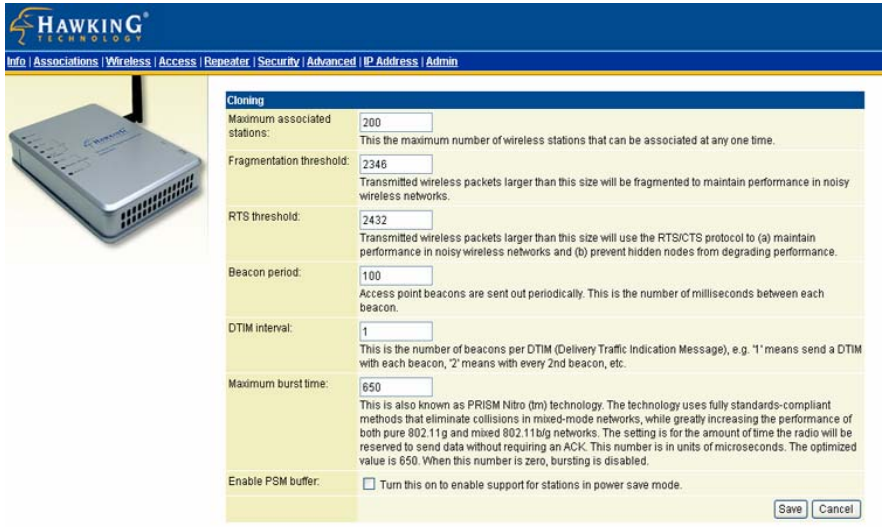


Figure: Access Control

Advanced (Advanced Wireless)



Maximum associated stations	200
Fragmentation threshold	To fragment MSDU or MMPDU into small sizes of frames for increasing the reliability of frame (The maximum value of **2346** means no fragmentation is needed) transmission. The performance will be decreased as well, thus a noisy environment is recommended.
RTS Threshold	RTS (Request To Send) is a control frame sent from the transmitting station to the receiving station requesting permission to transmit. This value is recommended to remain at its default setting of **2432**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.
Beacon period	This is also called **Beacon Interval**. This value indicates the frequency interval of the beacon. A beacon is a packet broadcast by the AP to synchronize the wireless network. The default value is 100.
DTIM interval	DTIM stands for **Delivery Traffic Indication Message**. A DTIM is a countdown field informing clients of the

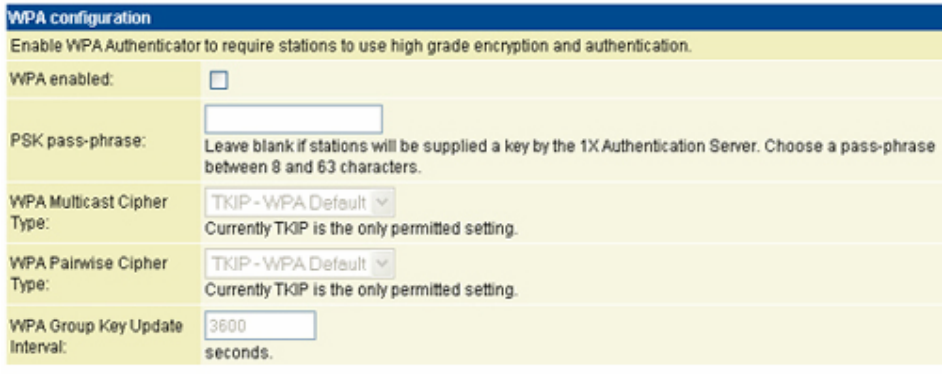
	next window for listening to broadcast and multicast messages. When the access point has buffered broadcast or multicast message for associated clients, it sends the next DTIM with a DTIM Interval value. Access point clients hear and awaken to receive the broadcast and multicast messages.

Maximum burst time	The amount of time the radio will be reserved to send data without requiring an ACK. Adding a burst time should help throughput for 802.11g clients when AP is running in mixed mode. This number is in units of microseconds. A typical value would be 1000 microseconds. When this number is zero, bursting is disabled.
Enable PSM buffer	PSM stands for Power Save Mechanisms. Turn this on to enable support for stations in power save mode.

Security

Here you can configure the security of your wireless network. Selecting different method will enable you to have different level of security.

WPA (Wi-Fi Protected Access) is the new wireless LAN security standard for 802.11 networks, which was developed to replace the existing standard WEP. **WPA** authorizes and identifies users based on a secret key that changes periodically.

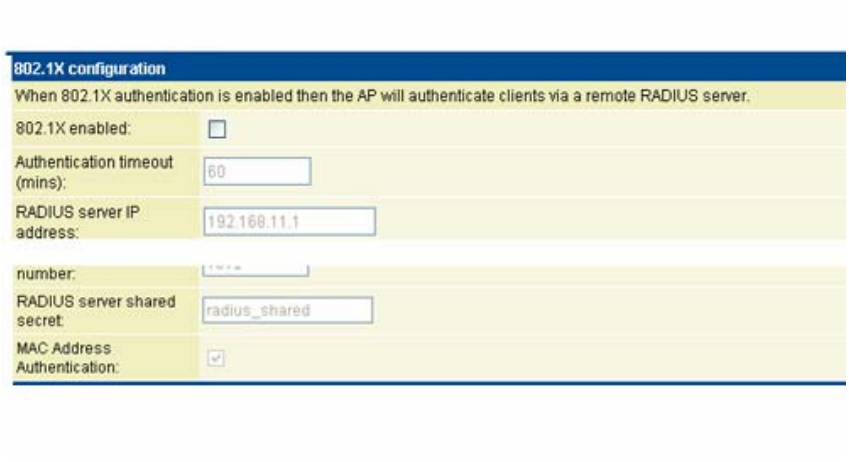


PSK pass-phrase	PSK stands for Pre-Shared-Key and serves as a password. User may key in a 8 to 63 characters string to set the password or leave it blank, in which the 802.1x Authentication will be activated. Note that if user key in own password, make sure to use the same password on client's end.

WPA Multicast Cipher Type	Select **TKIP - WPA Default**
WPA Pairwise Cipher Type	Select **TKIP - WPA Default**
WPA Group Key Update Interval	This shows the time period for the next key change. The default value is **3600 (seconds)**. Users may set the values of their preference.

**Note that WPA Multicast Cipher Type & WPA Pairwise Cipher Type are the same.*

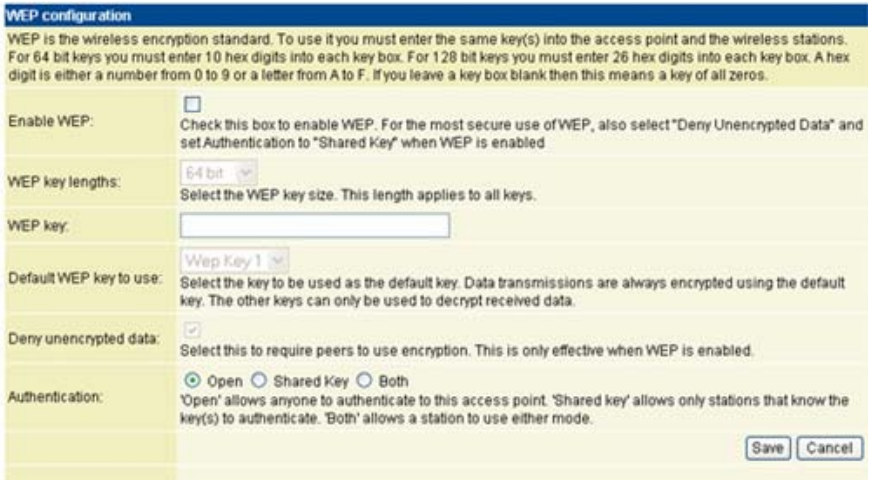
802.1x Authentication in conjunction with the RADIUS SERVER verifies the identity of would be clients.



Authentication timeout (mins)	The default value is **60** (minutes). When the time expires, the device will re-authenticate with RADIUS server.

RADIUS server IP address	Enter the RADIUS server IP.
RADIUS server port number	Port used for RADIUS, the number of ports must be the same as the RADIUS server , normally the port is **1812**
RADIUS server shared secret	When registered with a RADIUS server, a **password** will be assigned. This would be the RADIUS server shared secret.
MAC Address Authentication	Use client mac address for authentication with RAIDUS server

WEP (Wired Equivalent Privacy) is a data privacy mechanism based on a 64-bit/128-bit shared key algorithm. WEP encryption scrambles the communication between your access points and client devices to keep the communication private. However, if an intruder passively receives enough packets encrypted by the same WEP key, the intruder can perform a calculation to learn the key and use it to join your network.



Enable WEP	WEP (Wired Equivalent Privacy) encryption can be used to ensure the security of your wireless network. The window allows you to set to **64bit** or **128bit** Encryption (WEP) by using either **Passphrase** or **Manual Entry** methods. ***Note***: To allow Decryption and communication, all wireless devices must share the identical encryption key on the same network.
WEP key lengths	Select between 64-bit and 128-bit.
WEP key	You can enter WEP key here or use the default settings shown in the next field.

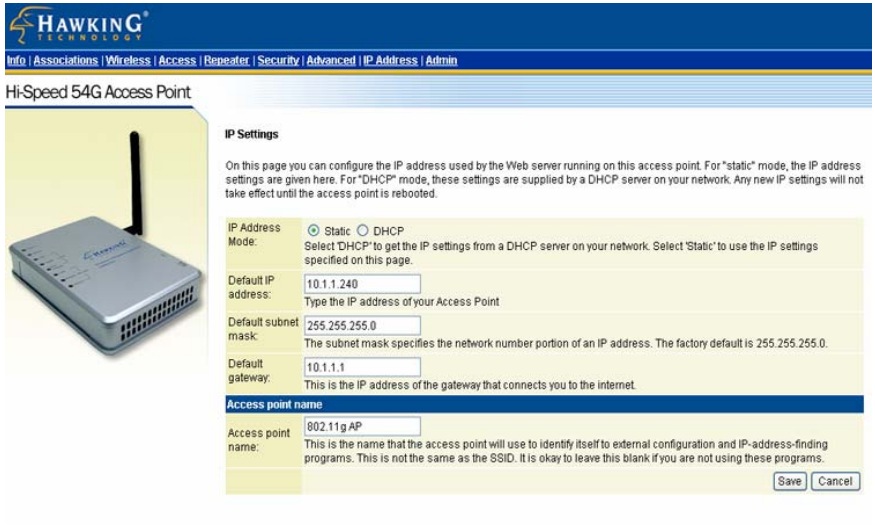
Default WEP key to use	Select one of the four keys to encrypt your data. Only the key you select it in the "Default WEP key to use" will take effect.
Deny unencrypted data	To access this wireless network clients are required to use encryption. This should be checked together with the item "Enable WEP".
Authentication	The authentication mode defines configuration options for the sharing of wireless networks to verify identity and access privileges of roaming wireless network cards. You may choose between **Open**, **Shared Authentication**, and **Both**. If the access point is using "**Open Authentication**", then the wireless adapter will need to be set to the same authentication mode. **Shared Authentication** is when both the sender and the recipient share a secret key. Select **Both** for the network adapter to select the Authentication mode automatically depending on the access point Authentication mode.

IP Addr (IP Address Settings)

Set the management IP for the Wireless 802.11g Access Point, the default IP address is 192.168.1.240.

IP Address Mode

If you select **DHCP**, the DHCP server will automatically assign an IP address to this device. The fields that follow will be grayed out and require no further configuration. If you select **Static**, you will have to manually set the device IP address.



Access point name

You can name this access point for identification. You can leave it blank without entering anything. However, the name for the access point will be useful for identification especially when there are more than on access points in your wireless network.

Admin (Administration)

In this Administration page, you can

Change password.

The device has no password at default. It is recommended that you set a password to ensure that no one can adjust the device's settings;

To set/change password:

1. Enter your password in the first password box.
2. Enter the password again in the next box to confirm.
3. Click **SAVE** to save the setting.

Reboot/Reset this device**.**

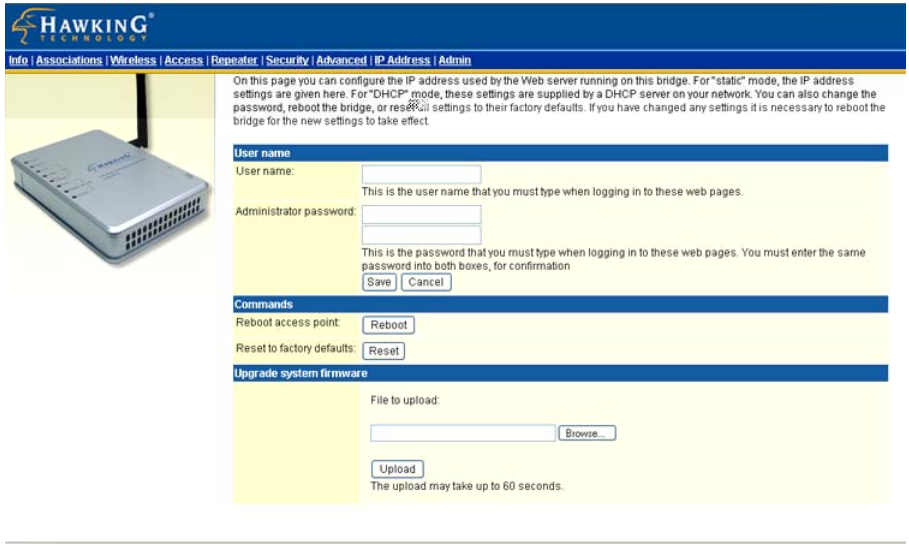
Reboot: the device will re-boot itself and while still keep your original settings. You will probably do this if problems occur with this access point.

Reset, the device will reset itself to the factory default settings. (***Note that all your original settings will be replaced by factory default settings.***)

Upgrade system firmware.

To upgrade system firmware,

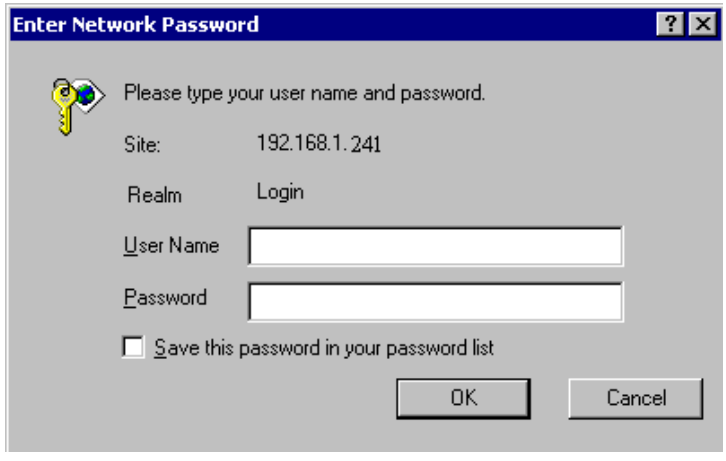
1. You will have to download the file to your computer.
2. Enter the file name and path in the field next to the Browse button. Or you can click Browse to find the file you previously downloaded.
3. Click the **Upload** button to start upgrading. Wait for about 1 minute for the upgrade.
4. When the firmware upgrade is complete, remember to reboot the device.
5. If you want to change the operation mode, remember the default IP address for WAP Access Point is 192.168.1.240, while for Bridge mode it is 192.168.1.241.



Bridge -Configuration via Web

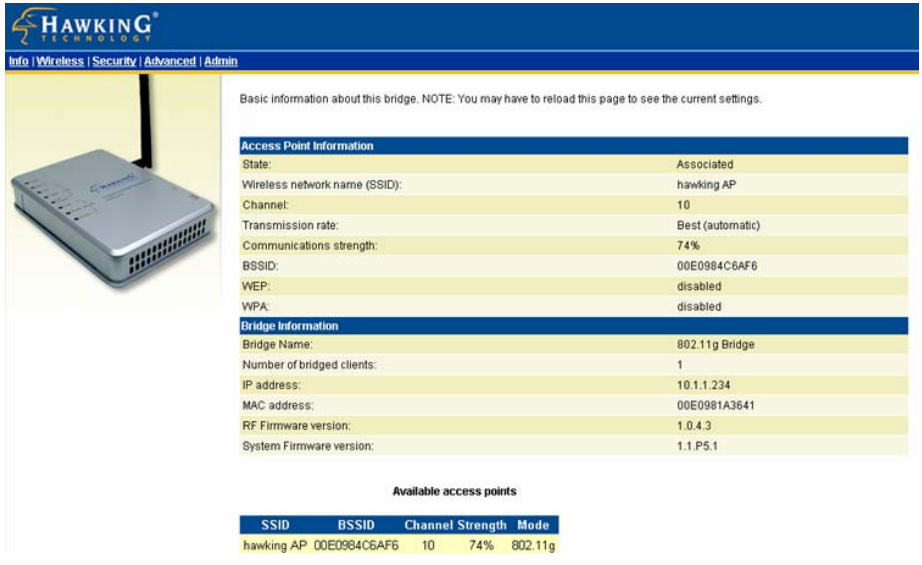
Login

Open the browser, enter the local port IP address of the Device (default at **192.168.1. 241**), and click "**Go**" to get the login page.
The user name and password are not required and should be left blank for the first-time login. Just click **OK** to enter.



Info(Information)

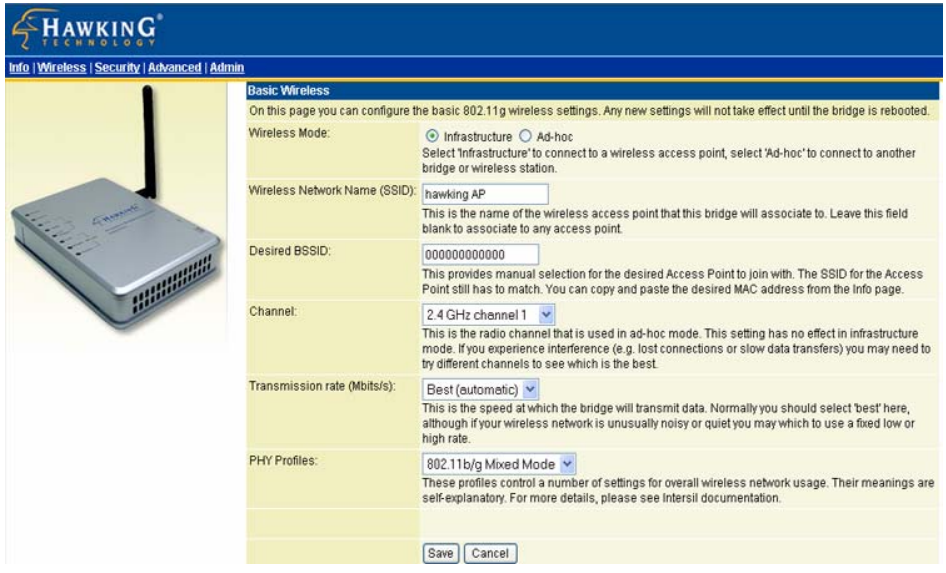
The setup home page will display the information about the current settings of this access point.

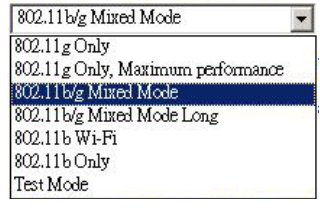


Wireless (Wireless Configuration)

Here you can set/change wireless configuration including **visibility status, PHY profiles, SSID, channel, transmission rate** … etc. See the description that comes after each function.

When you are done with the change, remember to restart this access point to let the new settings take effect.



Wireless Mode	Infrastructure mode: to connect to a AP Ad-hoc mode to connect to other bridge station.
ireless Network Name (SSID)	The **SSID** is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network.
Channel	Select channel that is currently in use. (There are **14** channels available, depending on the country.) only for Ad-hoc mode
Transmission rate (Mbps)	Shows the current transfer rate There are Best (Automatic), Fixed 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54Mbps.)
PHY Profiles	You can select different wireless networking hardware (PHY) to meet your wireless environment or for optimal performance. You can thus choose from the list. 

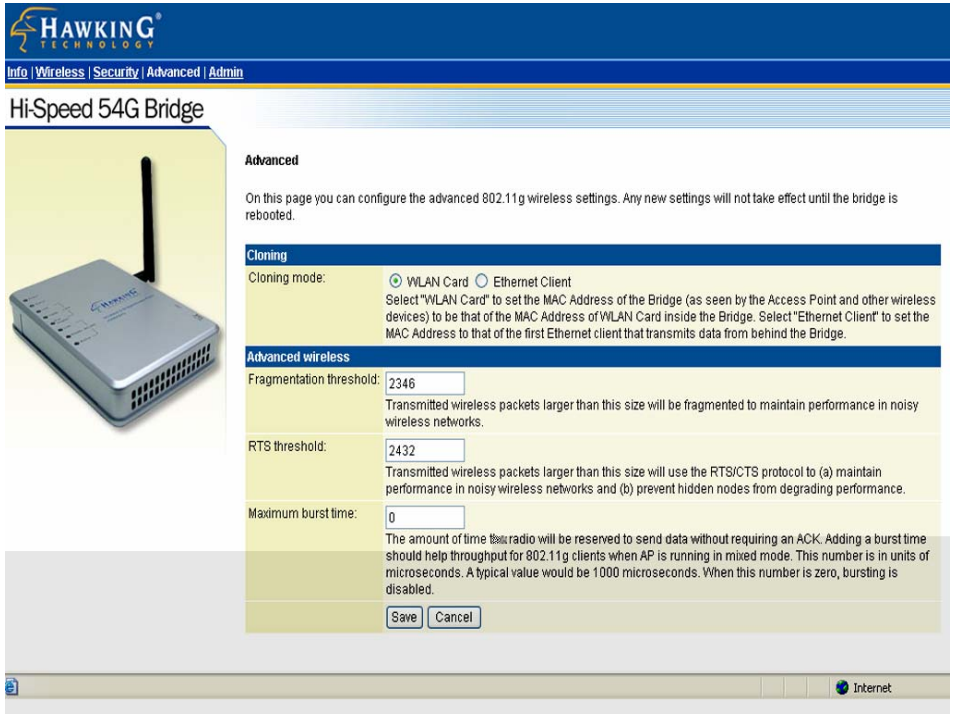
Security

Here you can enable the WEP and set the WEP key, if you enable WEP, the client PC must also set their WEP key.

Enable WEP	WEP (Wired Equivalent Privacy) encryption can be used to ensure the security of your wireless network. The window allows you to set to **64bit** or **128bit** Encryption (WEP) by using either **Passphrase** or **Manual Entry** methods. ***Note***: To allow Decryption and communication, all wireless devices must share the identical encryption key on the same network.
Default WEP key to use	Select one of the four keys to encrypt your data. Only the key you select it in the "Default WEP key to use" will take effect.
Deny unencrypted data	To access this wireless network clients are required to use encryption. This should be checked together with the item "Enable WEP".
Authentication	The authentication mode defines configuration options for the sharing of wireless networks to verify the identity and access privileges of roaming wireless network cards. You may choose between **Open**, **Shared Authentication**, and **Both**. If the access point is using "**Open Authentication**", then the wireless adapter will need to be set to the same authentication mode. **Shared Authentication** is when both the sender and the recipient share a secret key. Select **Both** for the network adapter to select the Authentication mode automatically depending on

	the access point Authentication mode.
WEP key lengths	Select between 64-bit and 128-bit.
WEP key	Enter WEP key here .

Advanced (Advanced Wireless)



Cloning mode	WLAN Card : set MAC address by internal MAC address, Ethernet Client: Set MAC address as the first LAN client.
Fragmentation threshold	To fragment MSDU or MMPDU into small

	sizes of frames for increasing the reliability of frame (The maximum value of **2346** means no fragmentation is needed) transmission. The performance will be decreased as well, thus a noisy environment is recommended.
RTS Threshold	RTS (Request To Send) is a control frame sent from the transmitting station to the receiving station requesting permission to transmit. This value is recommended to remain at its default setting of **2432**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.
Maximum burst time	The amount of time the radio will be reserved to send data without requiring an ACK.

Admin (Administration)

In this Administration page, you can

Change device name.

This is the name that the bridge will use to identify itself to external configuration and IP-address-finding programs. It is okay to leave this blank if you are not using these programs

IP address setting.

Set the IP address for this device or use dhcp to get a ip for this device.

Change password.

The device has no password at default. It is recommended that you set a password to ensure that no one can adjust the device's settings;

To set/change password:

4. Enter your password to the first password box.
5. Enter the password again in the next box to confirm.
6. Click **SAVE** to save the setting.

Reboot/Reset this device**.**

Reboot, the device will re-boot itself and still keep your original settings. You will probably do this if problems occur with this access point.

Reset, the device will reset itself to the factory default settings. (***Note that all your original settings will be replaced by factory default settings.***)

Upgrade system firmware.

To upgrade system firmware,

1. You will have to download the file to your computer.
2. Enter the file name and path in the field next to the Browse button. Or you can click Browse to find the file you previously downloaded.
3. Click the **Upload** button to start upgrading. Wait for about 1 minute for the upgrade.
4. When the firmware upgrade is complete, remember to reboot the device.

HAWKING TECHNOLOGY

Info | Wireless | Security | Advanced | Admin

Hi-Speed 54G Bridge

Administration

On this page you can configure the IP address used by the Web server running on this bridge. For "static" mode, the IP address settings are given here. For "DHCP" mode, these settings are supplied by a DHCP server on your network. You can also change the password, reboot the bridge, or reset all settings to their factory defaults. If you have changed any settings it is necessary to reboot th bridge for the new settings to take effect.

Device name

Device name: 802.11g Bridge

This is the name that the bridge will use to identify itself to external configuration and IP-address-finding programs. This is not the same as the SSID. It is okay to leave this blank if you are not using these programs.

IP settings

IP Address Mode: (•) Static ( ) DHCP

Select 'DHCP' to get the IP settings from a DHCP server on your network. Select 'Static' to use the IP settings specified on this page.

Default IP address: 10.1.1.234

Type the IP address of your bridge

Default subnet mask: 255.255.255.0

The subnet mask specifies the network number portion of an IP address. The factory default is 255.255.255.0.

Default gateway: 10.1.1.1

This is the IP address of the gateway that connects you to the internet. The factory default is 192.168.1.1.

Security

User name:

This is the user name that you must type when logging in to these web pages.

Administrator password:

This is the password that you must type when logging in to these web pages. You must enter the same password into both boxes, for confirmation

Save Cancel

Commands

Reboot bridge: Reboot

Reset to factory defaults: Reset

Upgrade system firmware

File to upload:

Browse...

Upload

The upload may take up to 60 seconds.

Done Internet